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Docket No. 60,469-031
OT-4791

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Gieras, et al
Serial No.:	09/740,231
Filed:	12/18/00
Group Art Unit:	2834
Examiner:	Elkassabgi, Heba
Title:	**METHOD OF MAKING TRANSFER FLUX MOTORS**

APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant now submits this brief after having filed a Notice of Appeal on October 18, 2004. No fees are due because Applicant previously paid the corresponding fees when Applicant first filed an appeal brief regarding this application.

Real Party in Interest

Otis Elevator Company, which is the Assignee of this application, is the real party in interest. Otis Elevator Company is a business unit of United Technologies Corporation.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of the Claims

Claims 10, 12 and 16 stand rejected. Claims 19, 22-23, and 26-29 have been allowed. Claims 11, 13-15, 17, 18, 20, 21, 24 and 25 are considered allowable by the Examiner.

Claims 1-9, which were withdrawn from consideration based upon a restriction requirement, have been cancelled.

Status of Amendments

There are no unentered amendments.

Summary of Claimed Subject Matter

This invention generally relates to transverse flux motors and their components. Only the subject matter of the three rejected claims will be discussed here.

Independent claim 10 recites:

10. A motor assembly comprising:

> a stator having first and second stator core portions including a closed ring and a coil nestingly supported between the core portions such that at least part of axial surfaces on the coil are covered by the core portions and the closed ring is circumferentially coextensive with the coil;
>
> a rotor having a core and a plurality of magnets, the stator and rotor being supported to allow for relative rotary motion between the rotor and the stator such that the plurality of magnets of the rotor interact with the stator core portions during such relative rotary motion.

One example embodiment that claim 10 reads upon is shown in Figures 1-6 of the drawings. A stator 22 has first and second core portions 28. The stator includes a closed ring (in this embodiment, an outer portion of the stator core portions 28) and a coil 26 nestingly supported between the core portions 28 such that at least part of axial surfaces on the coil 26 are

covered by the core portions. In the illustration of Figure 3, for example, the core portions include projections 32 that cover over part of the axial surfaces on the coil 26. The closed ring of the stator 22 is circumferentially coextensive with the coil 26.

In the example embodiment of Figures 1-6, the closed ring of the stator comprises the core portions 28. In the example embodiment of Figures 7-9, the closed ring of the stator comprises a yoke portion 62. Claim 10 does not require a yoke portion.

Referring again to the example of Figures 1-6 and as best seen in Figure 1 and 2, a rotor 24 has a core 50 and a plurality of magnets 52. The stator 22 and rotor 24 are supported for relative rotary motion between them such that the plurality of magnets 52 of the rotor 24 interact with the stator core portions 28 during such relative rotary motion.

Independent claim 12 recites:

12. A motor assembly comprising:

> a stator having first and second stator core portions and a coil nestingly supported between the core portions such that at least part of axial surfaces on the coil are covered by the core portions;
>
> a rotor having a core and a plurality of magnets, the stator and rotor being supported to allow for relative rotary motion between the rotor and the stator such that the plurality of magnets of the rotor interact with the stator core portions during such relative rotary motion;
>
> two support members that enclose at least part of outward axial surfaces of the core portions; and
>
> a plurality of magnetic core members supported by the support members.

One example embodiment that claim 12 reads upon is shown in Figures 1-6 of the drawings. Claim 12 includes a stator and a rotor similar to those recited in claim 10 except that claim 12 does not require the closed ring found in claim 10. Claim 12 includes two support members that enclose at least a part of outward axial surfaces of the core portions and a plurality

of magnetic core members supported by the support members. These limitations of claim 12 read upon the support members 40 and the magnetic core members 46 that are most clearly shown in Figures 5 and 6.

The only other rejected claim is independent claim 16. That claims recites:

16. A motor assembly comprising:

> a stator having first and second stator core portions and a coil nestingly supported between the core portions such that at least part of axial surfaces on the coil are covered by the core portions;
>
> a rotor having a core and a plurality of magnets, the stator and rotor being supported to allow for relative rotary motion between the rotor and the stator such that the plurality of magnets of the rotor interact with the stator core portions during such relative rotary motion, wherein each stator core portion includes a generally annular ring and a plurality of circumferentially spaced projections that project radially inward from the ring.

In claim 16, each stator core portion includes a generally annular ring and a plurality of circumferentially spaced projections that project radially inward from the ring. These limitations read on the example embodiment of Figures 1-6 as can be appreciated by considering Figures 2 and 3. The stator core portions 28 have a generally annular ring shown around the outside of the stator core portions. Circumferentially spaced projections 32 project radially inward from the ring. In the illustrated example, the coil 26 is nestingly received between the core portions as can be appreciated in Figure 3, for example.

The remaining claims are not rejected and have been indicated as being allowed or allowable over the art. Therefore, no discussion of those claims is provided here.

Grounds of Rejection to Be Reviewed on Appeal

Claim 10 was rejected under 35 U.S.C. §112.

Claim 12 was rejected under 35 U.S.C. §103.

Claim 16 was rejected under 35 U.S.C. §102(b).

As all other claims have been allowed or indicated as being allowable, Applicant does not consider those claims to be on appeal and does not discuss them in this brief.

Argument

All three rejections must be reversed. Claim 10 is clear, there is no *prima facie* case of obviousness against claim 12 and the allegedly anticipatory reference is missing more than one element of claim 16 such that there is no anticipation.

THE IMPROPER §112 REJECTION

The Examiner has rejected claim 10, stating, "The "ring" needs to be disclosed in a full, clear, and concise manner as to the closed ring being the yoke portions (62) or the pair of radially laminated stacks (60). For purpose of examination as understood by the Examiner in the specification and drawings the closed ring will be interpreted to be the yoke portions."

Claim 10 is not indefinite. Claim 10 recites a stator that includes a closed ring. As noted above, claim 10 reads on more than one embodiment, including two examples from Applicant's disclosure. In one of those examples, the stator core portions 28 comprise a closed ring. In another example, at least a yoke portion 62 comprises a closed ring. In either instance, the stator

includes a closed ring. In both embodiments, the closed ring is circumferentially coextensive with the coil.

Because the claim reads on more than one embodiment does not render it indefinite. Claim 10 is entirely consistent with the requirements of 35 U.S.C. §112.

The rejection of claim 10 must be reversed.

THE IMPROPER REJECTION UNDER 35 U.S.C. § 102

Claim 16 is improperly rejected as being "anticipated by *Lange* (U.S. Patent 5,289,072)." In order for there to be anticipation, every element of claim 16 must be shown or at least inherent in the *Lange* reference. More than one of the claimed elements cannot be found in the *Lange* reference and, therefore, there is no anticipation.

Claim 16 recites, "each stator core portion includes a generally annular ring." There is no stator core portion comprising a generally annular ring in the *Lange* reference. Instead, the stator assembly 5 comprises a plurality of U-shaped armature elements 9. A U-shaped element is not an annular ring. As can be appreciated from Figure 2 of the *Lange* reference, a plurality of individual U-shaped armature elements 9 are spaced from each other within the housing 1 such that even the collection of them does not constitute an annular ring.

The *Lange* reference is void of an annular ring as recited in claim 16. Therefore, there is no anticipation.

As the *Lange* reference does not includes the annular ring of claim 16, it cannot include the plurality of circumferentially spaced projections projecting from a ring as recited in claim 16. If either were missing, there would be no anticipation. Since both are missing, the claimed invention is novel.

The rejection of claim 16 under 35 U.S.C. §102 must be reversed.

THE IMPROPER REJECTION UNDER 35 U.S.C. §103

Claim 12 has been rejected under 35 U.S.C. §103 based upon the proposed combination of the *Lange* reference with the *Weh* (5,051,641) reference. The Examiner proposes to combine the motor structure of *Lange* and the casing of *Weh* "in order [to] provide the axis of movement by way of magnetization." There is no motivation for making this combination and, therefore, no *prima facie* case of obviousness. Where a proposed combination provides no benefit, there is insufficient legal motivation for making it and the combination cannot be made.

In this instance, the Examiner proposes to add casings from the *Weh* structure to the structure of the *Lange* reference. The only description of the intermediate casings ZG in the *Weh* reference is found in column 5, lines 15-21. There, the *Weh* reference teaches, "Through the symmetrical arrangement of the stators in respect to the rotor R given in Fig. 4,...there is also achieved a form favorable for the assembling. The smallest unit, a string-half, is connected with the aid of an intermediate casing ZG with the appertaining casing shell G."

To begin with, it is completely unclear how the casings ZG of the *Weh* reference would fit into the arrangement of the *Lange* reference. Even if they were somehow accommodated in that arrangement, there is no teaching of how they would cooperate with the elements 6 and 7 or how they would provide any benefit. The body structures 4A and 4B of the *Lange* reference completely serve their intended purpose and cooperate with the carrier disk 3 in a manner that makes it difficult to imagine how the casings ZG of the *Weh* reference would provide any benefit. The only possible justification for the proposed combination, which cannot be made, is hindsight reasoning.

Further, the *Lange* reference already has an outside stator 6 and an inside stator 7 that cooperate with the pole structures 12 of the rotor to achieve the desired magnetic flux path. If one were to attempt to somehow incorporate the casings of the *Weh* reference into the *Lange* device to establish a flux path for magnetization, that would, at best, be redundant. There is simply no benefit to making the proposed combination. Without any benefit, there is no motivation and no *prima facie* case of obviousness.

The rejection under 35 U.S.C. §103 must be reversed.

CONCLUSION

Applicant respectfully submits that claim 10 is clear, claim 12 is not obvious and claim 16 is not anticipated. As all other claims have been allowed or have been indicated as being allowable, this case, which has been pending for four years, is in condition for allowance. Applicant respectfully submits that the remaining rejections must be reversed.

Respectfully submitted,

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December 20, 2004
Date

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CERTIFICATE OF MAIL

I hereby certify that the enclosed **Appeal Brief** is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Mail Stop Appeal Brief-Patents, Commissioner For Patents, P. O. Box 1450, Alexandria, VA 22313-1450 on December 20, 2004.

Theresa M. Palmateer

APPENDIX OF CLAIMS

1-9. (Cancelled)

10. A motor assembly comprising:

a stator having first and second stator core portions including a closed ring and a coil nestingly supported between the core portions such that at least part of axial surfaces on the coil are covered by the core portions and the closed ring is circumferentially coextensive with the coil;

a rotor having a core and a plurality of magnets, the stator and rotor being supported to allow for relative rotary motion between the rotor and the stator such that the plurality of magnets of the rotor interact with the stator core portions during such relative rotary motion.

11. The assembly of claim 10, including two support members that enclose at least part of outward axial surfaces of the core portions.

12. A motor assembly comprising:

a stator having first and second stator core portions and a coil nestingly supported between the core portions such that at least part of axial surfaces on the coil are covered by the core portions;

a rotor having a core and a plurality of magnets, the stator and rotor being supported to allow for relative rotary motion between the rotor and the stator such that the plurality of magnets of the rotor interact with the stator core portions during such relative rotary motion;

two support members that enclose at least part of outward axial surfaces of the core portions; and

a plurality of magnetic core members supported by the support members.

13. The assembly of claim 12, including a plurality of slots on the support members and wherein the magnetic core members are received in corresponding ones of the slots.

14. The assembly of claim 10, wherein each stator core portion comprises sintered powder material.

15. The assembly of claim 10, wherein each stator core portion comprises a laminated ring.

16. A motor assembly comprising:

a stator having first and second stator core portions and a coil nestingly supported between the core portions such that at least part of axial surfaces on the coil are covered by the core portions;

a rotor having a core and a plurality of magnets, the stator and rotor being supported to allow for relative rotary motion between the rotor and the stator such that the plurality of magnets of the rotor interact with the stator core portions during such relative rotary motion, wherein each stator core portion includes a generally annular ring and a plurality of circumferentially spaced projections that project radially inward from the ring.

17. The assembly of claim 16, including two support members with a plurality of radially inwardly projecting spacer portions and wherein the stator core portion projections and the spacer portions are interspersed such that outward axial surfaces on the core projections are not covered by the support members.

18. The assembly of claim 17, including a plurality of slots in the support members and at least one magnetic core member inserted into each of at least some of the slots.

19. A motor assembly comprising:

a stator having first and second stator core portions and a coil nestingly supported between the core portions such that at least part of axial surfaces on the coil are covered by the core portions;

a rotor having a core and a plurality of magnets, the stator and rotor being supported to allow for relative rotary motion between the rotor and the stator such that the plurality of magnets of the rotor interact with the stator core portions during such relative rotary motion, including a bonding agent on the stator that bonds the stator core portions together.

20. The assembly of claim 10, wherein the stator coil axial surfaces are completely covered by the stator core portions.

21. The assembly of claim 10, wherein the stator coil comprises a prewound coil that is inserted between the stator core portions.

22. A motor assembly, comprising:

a stator having first and second stator core portions and a coil supported between the core portions such that at least part of the axial surfaces on the coil are covered by the core portions, each stator core portion including a generally annular ring and a plurality of circumferentially spaced projections that project radially inward from the ring, and including two support members with a plurality of radially inwardly projecting spacer portions, the stator core portion projections and the spacer portions being interspersed such that outward axial surfaces on the core projections are not covered by the support members; and

a rotor having a core and a plurality of magnets, the stator and rotor being supported for relative rotary motion between the rotor and the stator such that the plurality of magnets of the rotor interact with the stator core portions during such relative rotary motion.

23. The assembly of claim 22, including a plurality of slots in the support members and at least one magnetic core member inserted into each of at least some of the slots.

24. The assembly of claim 10, wherein the first core portion comprises a first part of the closed ring and the second core portion comprises a second part of the closed ring.

25. The assembly of claim 10, including a yoke portion received between the first and second stator core portions, the closed ring comprising at least the yoke portion.

26. A motor assembly, comprising:

a stator having a first portion and a second portion, each stator portion comprising an annular ring and a plurality of spaced, extending projections; and

an annular coil received between the projections of the first and second stator portions such that the stator portion rings are circumferentially coextensive with the coil.

27. The assembly of claim 26, wherein the first stator portion ring is secured to the second stator portion ring.

28. The assembly of claim 26, including a yoke portion and wherein the first stator portion ring is secured to a first side of the yoke portion and the second stator portion ring is secured to a second side of the yoke portion.

29. The assembly of claim 26, including an epoxy securing the stator portions together.